

Service Quality at the Lebanese University: Faculty of Public Health

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Abstract:

Research Question (RQ): With the tremendous changes in the flow of global knowledge, higher education institutions are facing the questioning of its quality from the perspective of its primary customers, the students. The research question asks whether there are differences in service quality regarding expectations and perception and which dimensions need improvement. Service quality is one of the main perspectives that need to be integrated into the total quality strategies in higher education institutions for evidence of excellence and accreditation purposes.

Purpose: This research aims to evaluate service quality at the faculty level, to keep up with the changing needs of students and integrate the needs and expectations into the quality improvement strategies at the higher education level. This study will attempt to set the path and identify factors for improvements and their prioritization.

Method: SERVQUAL instrument was used for the GAPS model assessment of quality services and Improvement-Performance Analysis for prioritizing attributes as strategic goals for improvement. The data were collected at the Lebanese University (LU) at the Faculty of Public Health branch IV.

Results: Quality service dimensions that have the most need for improvement are the dimensions of Empathy and Tangibles. Whereas, the specific attributes that indicated the need of improved Performance and high Importance were: hearing and understanding students' specific needs, providing suitable timing of services, using up-to-date equipment and technology, showing honest interest in solving a student's problem, and providing services as promised.

Organization: Lebanese University will have the improvement strategies that are needed in its improvement plan for accreditation. At the faculty level, it can set a standard of operation based upon the results and reassess the evaluation for evidence of effective changes when completed.

Society: Quality service from the perspective of students will sustain the competency and assurance of the public higher education institutions in comparison to private ones. Public university's well being is the supportive pillar for the education of all students from different social status.

Originality: This study will be the first to assess service quality at LU. It is hoped to be the trigger for further similar and continuous series of assessments for all faculties that can gather a precise view of the needed improvements and set them as strategies in LU strategic plans.

Limitations / further research: Service quality is dynamic. It changes with changing generations and with differing backgrounds. Continuous measurement and use of the scale will provide a better, more accurate view of the situation.

Keywords: Service Quality, Higher Education, SERVQUAL, Gap Analysis, Importance-Performance Analysis, Lebanese University Faculty of Public Health Branch IV.

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1 Introduction

1.1 Description of the Research Question

Public higher education institutions, similar as private higher education institutions, need to assess their service quality from the perspective of their customer's and that their service quality meets their expectations (Jones & Shandiz, 2015, p. 67). The legacy of the high quality of education of some well-known higher education institutions (HEIs) nowadays is no longer unquestionable. The dynamic change in the field of education led to an unlevelled ground of uncertainty of its quality and effectiveness. To determine its high quality, evidence has to be presented. Excellence in quality has become an essential objective in higher education (Abdullah, 2006). A wave of implementing quality assurance, quality management, and accreditation are striking the universities in Lebanon to ensure their quality excellence. This is also applicable to the Lebanese University, the only public university in Lebanon. In the meantime, the Lebanese University is in its early steps towards this wave.

The Lebanese University was founded in 1952 and ever since, it has been in constant growth and dispersion through the five Lebanese provinces. It shares half of all of the Lebanese students with the 52 private universities in Lebanon. It has 79,000 students. The study presented in this paper was conducted in one of the faculty branches, the Faculty of Public Health branch IV (FPH IV) in the Bekaa region.

The Lebanese University is in its early process of acquiring quality management and aiming towards quality excellence through the process of institutional and program accreditation. Higher education quality under the umbrella of total quality management (TQM) peruses the improvement of all work procedures and establishes a standardized output including services (McNabb & Sepic, 1995, p. 382).

Research studies evaluate the service quality as a part of the targeted quality management goal (Yildiz & Kara, 2009, p. 412). In the process, students' perceptions are integrated in the quality improvement marathon the university is planning. Consequently, engaging students' perspective towards service quality contributes to the improvement of service quality.

Service quality evaluation and understanding the different factors that contribute to the service quality are the pillars of designing service quality at any institution including higher education (Abdullah, 2006, p. 46).

To obtain the afore-mentioned objectives, SERVQUAL, a service quality management framework was used. SERVQUAL is an instrument of a gap model that measures quality in the service sector as perceived by customers. It originates from a comparison of expectations of the service to be received and the perception of service performance of the service provider (Jones & Shandiz, 2015, p. 67). Expectations in SERVQUAL framework as explained by Parasuraman, Berry, and Zeithaml (1991) is not what the customers is satisfied or glad about but what the customers see as an excellent service provider would do or be. SERVQUAL is a

service quality management framework developed in the mid-1980s by Parasuraman, Zeithaml, and Berry (1985, 1988) to measure quality in the service sector (Jones & Shandiz, 2015; Parasuraman, Zeithaml, & Berry, 1985; Parasuraman, Zeithaml, & Berry, 1988)

Hossain (2014, p. 82) states that SERVQUAL appraises the functional aspect of service quality, customer-employee interaction, and not the technical aspect. In HEIs the technical aspect of educational outcomes is not assessed by SERVQUAL. However, the functional aspect of the service quality is measured, i.e., of how service is presented. The service measures that are identified as critical in an institution are either already standards of operation of the institution or key variables that could provide provision for the creation of further service standard of operations (Swersey, 2013, p. 60). When these key variables or standards are identified of high importance during a SERVQUAL assessment, they are set as a priority to begin improvement.

The factors of key variables or standards of high importance are then prioritized individually by a complementary tool for SERVQUAL called Importance-Performance Analysis (IPA). IPA decides for each factor or attributes its order for contributing to service quality efficiently. The order of importance of factors or attributes can be used to design management strategies to improve higher education's service quality.

1.2 Purpose and Goal of the Research

Higher education institutions need to assess their quality through the perspective of its customers. They need to proclaim that they had incorporated quality in their services as perceived by customers, i.e., students. The outcome of this approach can be used in three main benefits for the quality in the higher education at FPH IV.

- (1) At the Lebanese University level, the results of this study will contribute with the decisive improvement factors or attributes that can be used as quality improvement strategies. They will be integrated towards quality assurance accreditation.

Understanding the customer is a basic tenet for supporting decision makers in making the appropriate decisions. It can begin from the Faculty of Health Sciences branch IV, together with the results of similar studies from other faculties, which are then integrated for decision-making purposes of top management to pursue improvements at the Lebanese University.

- (2) At the level of the faculty, more specifically with FPH IV, service quality will be examined and evaluated, prioritizing the results and setting the way for improvements. It will assist to understand how students receive a service. It will set the base for standardizing the service procedures that are needed and expected from students.
- (3) The study also will act as a reference evaluation. Any change or improvements completed at the faculty targeting quality of service, the study can be replicated to

evaluate the improvement or change that took place by re-measuring of service quality using SERVQUAL. The performance of the faculty employees in the services that have met expectations could be changed into standards of operation and standardized at the faculty level across other branches.

In this research study, we are trying to determine the quality service dimensions that are considered a shortcoming regarding students' perception from their expectations, in general, and which quality service attributes, specifically, are in need to be prioritized and require emphasized attention for improvement.

2 Theoretical framework

2.1 Theoretical Framework of the SERVQUAL Tool

In evaluating service quality in an organization, more specifically, to measure the quality performed is not a simple task. Service is not a tangible product or good that has specific dimensions or specifications. Parasuraman, Zeithaml, and Berry (1985) identified these problems as the specialized uniqueness of a service, its intangibility (no substance), inseparability (provider and consumer), heterogeneity (variability) and perishability (no stock). These will render the measurement with dimensions challenging to determine. Parasuraman, Zeithaml, and Berry (1985) studied service quality and established the GAPS model. The model is used as a framework in services research. It is grounded on the disconfirmation of expectations paradigm conducted by Oliver (1980, 1997). It mainly illustrates how the customer perceives the service quality as a confirmation or disconfirmation of the service by comparing their expectation and outcome performance of the service. The GAP Model describes the market relationship between the marketer and the consumer. Specific Gaps are identified existing between different kinds of transactions. The GAP Model developer identified five of these gaps (see Figure 1). The sum of the transactions in the model are collected and in the final step is gap number five. It is the gap that constitutes the difference between the final expectation of the consumer and their perception of the outcome performance of a service. Gap five is the gap in which the measurement is taking place (Parasuraman, Zeithaml, & Berry, 1985).

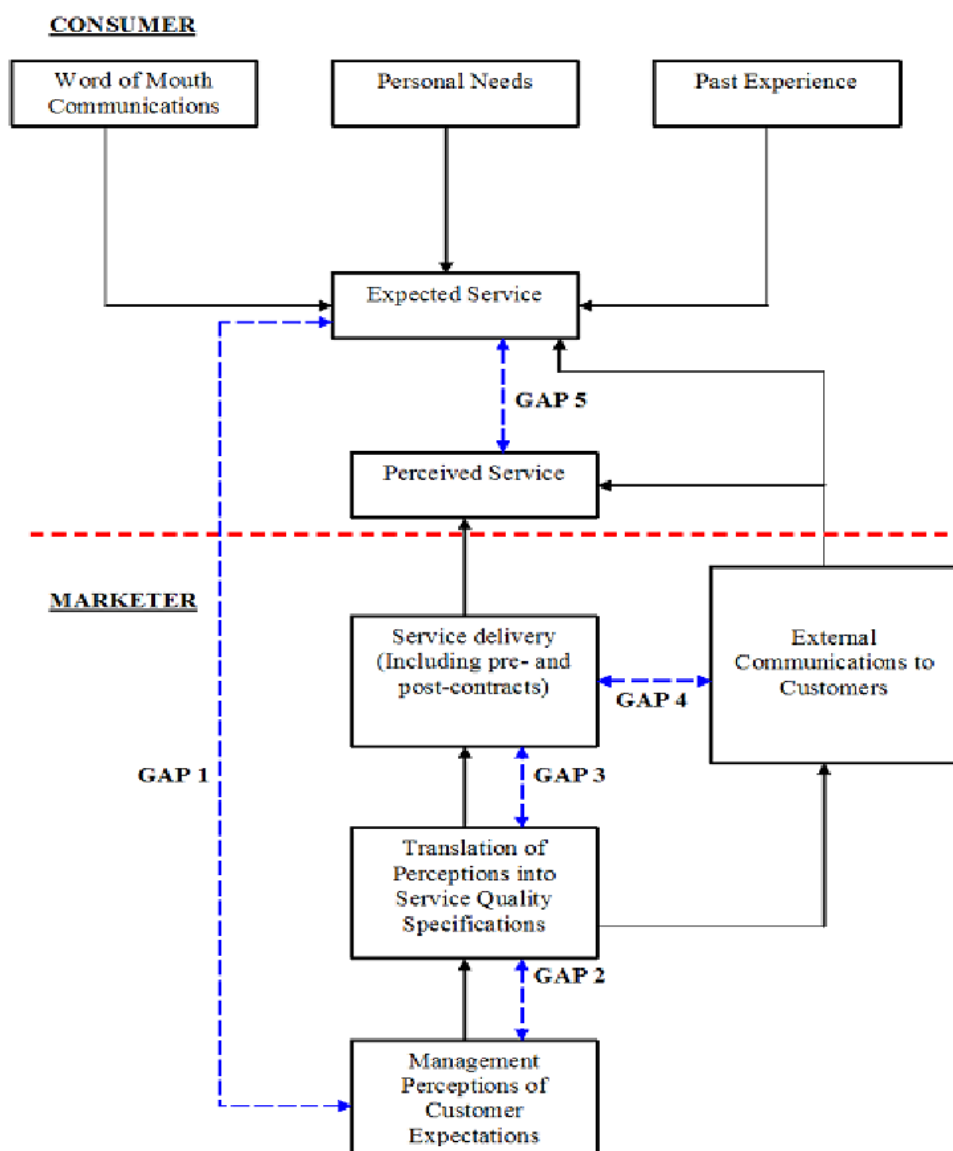


Figure 1. GAPS Model, Service quality model. Adapted from “A Conceptual Model of Service Quality and its Implications for Future Research”, by A. Parasuraman, A., Zeithaml, V. A., and L. L. Berry, 1985, *Journal of Marketing*, 49(4), p. 44.

Parasuraman, Zeithaml, and Berry (1985) explored that there are specific equivalent criteria that consumers used to describe any service quality perceived. These criteria were grouped into key categories that are called “service quality determinants.” The categories were later modified and regrouped in later studies by Parasuraman, Zeithaml, and Berry (1988); Parasuraman, Berry, & Zeithaml (1991). Consumers perceive quality in multiple dimensions and factors relevant to the context (Jones & Shandiz, 2015, p. 67).

The recent and most used are five categories, which each constitute several criteria. These categories are now well known as “quality service dimensions”. These service quality dimensions are not universal. They are compromised according to contextual service quality and have individual variations that can be modified (Buttle, 1996, p. 30). Following are the five categories with their definitions according to the original authors:

- **RELIABILITY:** The ability to perform the promised service dependably and accurately.
- **RESPONSIVENESS:** The willingness to help customers and provide prompt service.
- **ASSURANCE:** The knowledge and courtesy of employees and their ability to convey trust and confidence.
- **EMPATHY:** The caring, individualized attention provided to customers.
- **TANGIBLES:** The appearance of physical facilities, equipment, personnel, and communication materials. (Berry, Zeithaml, & Parasuraman, 1990, p. 29)

Based upon their work on service quality and gaps analysis, Parasuraman, Zeithaml, and Berry in 1988 developed an instrument called SERVQUAL. Presently, it is the most well-known scale used for service quality evaluation. It is widely used in the literature (Ladhari, 2009, p. 197). Parasuraman, Zeithaml, and Berry first proposed the instrument as a concept in 1985, then as a tool in 1988, and modified and revised in 1991. SERVQUAL is used in diverse service sectors, private and public including higher education in many different countries. Both academics and practitioners used SERVQUAL in a variety of industries and contexts (Buttle, 1996, p. 30; Ladhari, 2009, p. 178; Lam & Woo, 1997, p. 383).

SERVQUAL is regarded as a service quality management framework. The SERVQUAL tool uses the five service quality dimensions (reliability, assurance, tangibles, empathy, and responsiveness) and their component criteria or attribute. It compares the ideal expectation of each criterion of the quality dimension with its corresponding experienced perceived service. The result obtained when applying the evaluation is a deeper understanding of the studied organization's service quality from the perspective of its customers. This enables the effective and efficient communication of quality across the organization (Jones & Shandiz, 2015, p. 67).

SERVQUAL originally consisted of 22 statements. Each one of the statements is a criterion that belongs to one of the five service quality dimensions. The criterion is situated in the customer's expectation of an organization as well as situated in the customer's perception of an organization (*N.B.:* in this paper, an organization is referred to a higher education institution, more specifically, the Faculty of Public Health branch IV at the Lebanese University). Thus, the total original statements are 44 statements. In this research study, the criteria were modified to suit the higher education context, and the number of criteria was 21 with a total of 42 statements. The assessed expectations and perceptions formed a calculated gap score. A gap score was calculated for each statement in all of the five quality dimensions. Then each of the expectation and perception statements was assessed on a five- or seven-point Likert-type scale. The result of the Expectation statement was subtracted from its corresponding Perception statement. If the result was in a negative form, it meant that the expectations were higher than the perception resulting that a shortfall of the service criteria

was present. A further average of all the results in one quality service dimension can be calculated and compared to the other dimensions. The highest result is the dimension that needs improvement the most.

$$Q_i = E_i - P_i$$

Q_i : Gap score of i

E_i : Expected assessed result of i

P_i : Perceived assessed result of i

Analysis of the gap score is the basis for further analysis. The analysis could be done using the following approaches:

- The study of the dimensions that meet expectations or not. Negative or positive results of the gap differences between expectations and perceptions of customers
- The study of the same service in the same institution over time. Any changes that took place can be seen as the effect on results
- The comparison of the same service across different institutions
- The comparison of different customer groups regarding the same service at the same institution
- Studying the important dimensions of the customers (Jones & Shandiz, 2015).

2.2 Theoretical Framework of IPM

In this research study, in addition to SERVQUAL, a supplementary, complementary tool was used. It is called the Importance-Performance Analysis (IPA). It was developed by Martilla and James (1977, p. 77). IPA evaluates a series of attributes or criteria of a service based upon their importance to the customer against the evaluation of the performance of the service. The average results of evaluation from the customers for a specific criterion are plotted on an Importance-Performance Matrix or often called the Cartesian diagram. The plotted results are the average customer's evaluation of each criterion's customer's evaluation importance versus the average customer's evaluation of performance. Importance-Performance Matrix is divided into four quadrants based on importance-performance measurement result (see Figure 2) (Tileng, Utomo, & Latuperissa, 2013, p. 27).

In this research study, IPA is used to prioritize criteria average measurement of the quality service SERVQUAL within the quality dimensions. Modifications on the IPA are executed where Performance is replaced by Perception, the experience of the performance of a service. Importance is replaced by Expectation, the level of importance of a specific criterion for the customer (see Figure 2). IPA is used to determine which criteria are included in quadrant A, B, C, and D on the Importance-Performance Matrix.

The criteria that are plotted in quadrant number 1 are indicators that these criteria are of high customers' Importance / Expectation and low customers' Performance / Perception of a service. The customers consider these criteria with high expectations (importance), but their

perception (performance) of the service they experienced is low. The criteria in Quadrant A need improvement. Concentration of attention from management on service quality should be in quadrant one, prioritizing these criteria, for improvement. The slogan of Quadrant A is “Concentrate Here.”

Quadrant B contains the criteria that are of high customer’s expectations and high customer’s perception of performance of the studied service. The criteria in Quadrant B do not need improvement. The slogan for Quadrant B is “Keep up the good work.”

Quadrant C has the criteria that possess a low expectation of the customers along with low perception of the performance of service. They are not that important and are not performed well by the service provider. Improvements in the evaluation of the performance of service for these criteria will not be effective and efficient. It is better to place attention on another criterion. The slogan of Quadrant C is “Low priority.”

Quadrant D has the slogan of “Possible overkill.” The criteria in this quadrant are of low importance /expectation of the customers for the high-perceived performed service. The effort and resources provided for these criteria maybe are overdone (i.e., possible overkill) by the service providers. The efficiency of the service might be low (Silva & Fernandes, 2011b; Tileng, Utomo, & Latuperissa, 2013, p. 29).

Expectation / Importance	QUADRANT A Concentrate Here High Expectation /Importance Low Perception/ Performance	QUADRANT B Keep up the good work High Expectation /Importance High Perception/ Performance
	QUADRANT C Low Priority Low Expectation /Importance Low Perception/ Performance	QUADRANT D Possible Overkill Low Expectation /Importance High Perception/ Performance
	Perception / Performance	

Figure 2. Expectation/Importance Perception/ Performance Analysis Chart. Adapted from “Analysis of Service Quality Using SERVQUAL Method and Importance Performance Analysis (IPA) in Population Department, Tomohon City” by M. Y. Tileng, W. H. Utomo, and R. Latuperissa, R., 2013, *International Journal of Computer Applications*, 70(19) p. 24.

The research context was situated at the Lebanese University, FPH IV to evaluate and measure the service provided to students using the SERVQUAL instrument. The results were plotted on the IPA matrix to prioritize the evaluated criteria and set strategies for improvements. The main purpose was to prioritize dimensions for FPH IV to work on- and to include them in their improvement strategy plan (Tileng, Utomo, & Lauperissa, 2013, p. 28) It will also act as a data baseline when the implementation of quality management is completed. (Tileng, Utomo, & Latuperissa, 2013, p. 29)

3 Method

3.1 Data Collection

This study focused on the Faculty of Public Health Branch four (FSH IV) of the Lebanese University in Lebanon located in the Bekaa province. The Faculty is composed of eight majors mainly in the fields of medicine and public health. It supplies the local hospitals and other industries with the needed hospital practical nurses, physiotherapist, medical laboratory, and radiology technologists, medical social assistance, and midwives. Currently, 570 students

are studying in the different fields at this Faculty, and the total number of academic staff and employees is 190.

The data for this study were collected in classrooms, sending questionnaires to students who attended undergraduate degree programmes at FSH IV. Practically, all the students from the undergraduate level of the selected faculty constitute the population of this research study.

The survey was conducted during April and May of 2018, in the second semester of the 2017/2018 Academic Year. A total of 500 valid questionnaires were received, which represents 87.7% of the total population (N = 570 students). The sample size resulted in a sampling error of 3,7%, assuming a 95% confidence level (Silva & Fernandes, 2011b). As a rule of thumb, a sample size between 30 and 500 are considered effective sample sizes (Chui & bin Ahmad, 2016; Sekaran, 2003), and as such, we were able to continue with the study.

3.2 Theoretical Model of the Research and Data Analysis

Gaps analysis and Importance-Performance Analysis models are used to study the evaluation of the service assessing students' expectation and perception of service quality provided at FPH IV. The methodology of the empirical research was articulated in the following main steps:

- 1) Variables that are studied are the criteria and attributes of expectation and perception of students based on the work of Parasuraman, Zeithaml, and Berry (1985, 1988) and Parasuraman, Berry, & Zeithaml (1991). Selection and adaptation of criteria for the education sector was determined based on the review of literature of similar studies (Brochado, 2009; Çerri, 2012, 2014; Datta & Vardhan, 2017; De Oliveira & Ferreira, 2009; Legčević, 2010; Mansour, Fathelrahman, Diab, Mohamed, & Eljelly, 2015; Mohammadi & Mohammadi, 2014; Pariseau & McDaniel, 1997; Rasli, Shekarchizadeh, & Iqbal, 2012; Ulewicz, 2014; Yousapronpaiboon, 2014; Zeshan, Afridi, & Khan, 2010).

The selected criteria constructed the statements of the questionnaire of the SERVQUAL instrument used in the study, building the five service quality dimensions: (1) Tangibles with four criteria; (2) Reliability with five criteria; (3) Responsiveness with four criteria; (4) Assurance with four criteria, and (5) Empathy with four criteria. The total number of questionnaire statements for the expectation and perception sections was 42.

- 2) The data collected for this research was based on the SERVQUAL instrument, which used a Likert-type scale, which ranged from 1–5 (1 = Strongly Disagree, 2 = Disagree, 3 = Moderate, 4 = Agree, 5 = Strongly Disagree.)
- 3) The data analysis was conducted using gaps analysis of the quality service provided. The analysis enables the identification of criteria or dimensions that need

improvement. Then the results were analyzed using the Importance-Performance Analysis instrument to prioritize the needed criteria to be improved (Putri & Anggraini, 2018).

3.3 Reliability and Validity of Data Constructs

Reliability refers to measure consistency across items, over time and across different researcher studies. Smithson (2000) defines reliability as “reliability as the extent to which a measure is free of random measurement error” (p. 34). In our research, reliability is to ascertain that the questionnaire we are using is an indicator of the variables (Tharenou, Donohue, & Cooper, 2007). A questionnaire’s data is reliable if the student will be answering it consistently repeatedly even when completing it at different time intervals. For data analysis, we used SPSS version 24 for Windows. Cronbach’s Alpha was calculated to measure the data’s reliability. According to Nunnally (1960), Cronbach’s Alpha of a construct at > 0.60 is reliable.

The SERVQUAL scale was developed to be applied in the most varied services, as its structure may be adapted or complemented in order to cater to the specific needs of an individual organization (Parasuraman, Zeithaml, & Berry, 1988). For this reason, the scale was widely used to measure the perceived service quality in several sectors, including the educational sector (Abdullah, 2006; AlHarbi, Heavin, & Carton, 2016; Brochado, 2009; Çerri, 2014; Datta & Vardhan, 2017; De Oliveira & Ferreira, 2009; Ulewicz, 2014; Yousapronpaiboon, 2014; Zeshan, Afridi, & Khan, 2010).

A five-point Perception/Expectation questionnaire with 54 statements was prepared and pre-tested upon 40 students. The pilot test revealed that four statements were confusing to the students, and eventually deleted from the questionnaire. After revising the questionnaire, construct reliability of the instrument was tested based on Cronbach α for the items perception and expectation of students for the data collected by the questionnaire. Cronbach’s Alpha value was calculated at .926 for expectation and .898 for perception (see Table 1 and Table 2). Thus, the coefficients indicate that the questionnaires were reliable.

Table 1. Cronbach’s Alpha Value for Expectation

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.923	0.926	21

Table 2. Cronbach's Alpha Value Perception

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.871	0.898	21

Test for data validity is used to measure legitimate constructs. Validity means the instruments measure what it is supposed to measure. More specifically, in this study, the significance level of 5%, $\alpha = 0.05$ was set. When the p -value is less than the significance level ($\alpha = 0.05$), we can state that the item is valid. To determine the critical values for Pearson's Correlation Coefficient, we first need to calculate $df = n - 2$ (df = degrees of freedom, n is the sample size number). The sample obtained for this study was 500 as such the $df = 500 - 2$. If the count value of r (i.e., Corrected Item-Total Correlation) in the analysis is greater than r and is positive than the questions or indicators are valid (Tileng, Utomo, & Latuperissa, 2013). The critical values for Pearson's correlation coefficient was determined based on the table outlined by Sugiyono (1999; see Table 3) where n is used instead of df and as such we have the following values $r = .088$, $n = 500$, $p = .05$.

Table 3. Critical Values for Pearson's Correlation Coefficient

<i>r</i>			<i>r</i>			<i>r</i>			<i>r</i>			<i>r</i>		
<i>n</i>	5%	1%	<i>n</i>	5%	1%	<i>n</i>	5%	1%	<i>n</i>	5%	1%	<i>n</i>	5%	1%
	p=.05	p=.01		p=.05	p=.01		p=.05	p=.01		p=.05	p=.01		p=.05	p=.01
3	0.997	0.999	17	0,482	0,606	31	0,355	0,456	45	0,294	0,380	95	0,202	0,263
4	0.950	0.990	18	0,468	0,590	32	0,349	0,349	46	0,291	0,378	100	0,195	0,256
5	0.878	0.959	19	0,456	0,575	33	0,344	0,442	47	0,288	0,372	125	0,176	0,230
6	0.811	0.917	20	0,444	0,581	34	0,339	0,436	48	0,284	0,368	150	0,159	0,210
7	0.754	0.874	21	0,433	0,549	35	0,334	0,430	49	0,281	0,364	175	0,148	0,194
8	0.707	0.834	22	0,423	0,537	36	0,329	0,424	50	0,279	0,361	200	0,136	0,181
9	0.688	0.798	23	0,413	0,526	37	0,325	0,418	55	0,266	0,345	300	0,113	0,148
10	0.632	0.765	24	0,404	0,515	38	0,320	0,413	60	0,254	0,330	400	0,098	0,128
11	0.602	0.735	25	0,396	0,505	39	0,316	0,408	65	0,244	0,317	500	0,088	0,115
12	0.576	0.708	26	0,388	0,496	40	0,312	0,403	70	0,235	0,306	600	0,080	0,105
13	0.553	0.684	27	0,381	0,487	41	0,308	0,398	75	0,227	0,296	700	0,074	0,097
14	0.532	0.661	28	0,374	0,478	42	0,304	0,393	80	0,220	0,286	800	0,070	0,091
15	0.514	0.641	29	0,367	0,470	43	0,301	0,389	85	0,213	0,278	900	0,065	0,086
16	0.497	0.623	30	0,361	0,463	44	0,297	0,384	90	0,207	0,270	1000	0,062	0,081

Note: Critical Values for Pearson's Correlation Coefficient. Adapted from *Statistik non parametris*, by D. Sugiyono, 1999, Alfabeta: Bandung.

As we are examining the Expectation and Perception variables, we first need to determine validity. Hence, when examining the attribute students' expectations, the value of the *r* count (i.e., in Table 4 under column Corrected Item-Total Correlation) for each of the Expectation items (i.e., E1–E21) were greater than .088. As such, each item is valid. Similar results are evident for students' perception. Based on the analysis it revealed that the *r* count (i.e., in Table 5 under column Corrected Item-Total Correlation) for each of the Perception items (i.e., P1–P21) was also greater than .088.

Table 4. Result Data Processing for Expectation

Expectation Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
E1	85.92	106.208	.418	.923
E2	86.11	105.342	.402	.924
E3	86.00	103.980	.481	.922
E4	86.03	104.100	.569	.920
E5	85.74	104.792	.552	.921
E6	86.03	104.500	.459	.923
E7	85.82	102.864	.609	.919
E8	86.00	102.732	.653	.919
E9	85.85	102.688	.616	.919
E10	86.07	102.661	.625	.919
E11	86.14	101.718	.662	.918
E12	85.86	102.681	.695	.918
E13	85.84	102.966	.633	.919
E14	85.84	103.267	.637	.919
E15	85.84	102.045	.671	.918
E16	85.81	102.825	.710	.918
E17	85.96	103.962	.610	.919
E18	86.43	101.666	.527	.922
E19	85.75	103.741	.612	.919
E20	85.98	102.754	.593	.920
E21	85.92	103.654	.576	.920

Table 5. Result Data Processing for Perception

Perception Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
P1	61.46	163.703	.375	.868
P2	62.05	163.651	.205	.879
P3	62.70	164.967	.403	.868
P4	61.35	160.070	.502	.865
P5	60.78	162.276	.535	.864
P6	61.02	163.548	.446	.867
P7	61.66	159.981	.606	.862
P8	61.74	160.780	.536	.864
P9	61.62	155.889	.659	.859
P10	61.46	161.869	.520	.864
P11	61.88	158.527	.644	.861
P12	61.30	157.685	.671	.860
P13	61.09	160.568	.514	.864
P14	60.97	162.416	.534	.864
P15	61.17	161.563	.528	.864
P16	61.27	157.512	.659	.860
P17	60.96	162.003	.162	.889
P18	61.85	156.933	.352	.873
P19	62.02	159.372	.452	.866
P20	61.96	156.047	.671	.859
P21	61.85	154.694	.661	.859

The model validation was supported by the analyses of results obtained, through the application of the questionnaire in a sample of 500 participants who evaluated the services of FPH Branch IV. As such, we proceeded with the study.

4 Results

4.1 General Characteristics of Student Participants

It is important to mention that the response rate from the total number of students registered at the faculty is 500 out of 570. That represents 87.7 % of total students who responded. The responses from students included 88.9 % females. In general, the health sectors usually attracts more females than males. Most students belonged to the age group of 20–25 years of age. Three disciplines have the most students: nursing and medical-social assistant majors. The students were equally distributed across the three academic years. Noting that the fourth year of studies is not required for all disciplines, only for two. The highest proportion of

students came from the area of Middle Bekaa, where the university is located. See Table 6 for more demographic characteristics of the participants included in the research study.

Table 6. General Characteristics of Student Participants

Variable	Number	%
<u>Gender</u>		
Female	433	88.9
Male	54	11.1
<u>Age</u>		
<20	195	40.9
20-25 years	281	58.9
26-30 years	1	0.2
> 30 years	0	0.0
<u>Major</u>		
Nursing English	91	18.2
Nursing French	106	21.2
Laboratory	53	10.6
Medical-social assistant	99	19.8
Physiotherapy	60	12.0
Radiology	34	6.8
Midwife	57	11.4
<u>Academic Year</u>		
1 st year	143	28.6
2 nd year	152	30.4
3 rd year	158	31.6
4 th year (certain majors)	47	9.4
<u>Residency</u>		
North Bekaa - West	42	8.6
North Bekaa - East	83	16.9
Middle Bekaa	288	58.7
South Bekaa	52	10.6
Hasbaya & Rashaya	24	4.9
Jabal	2	0.4

4.2 Gap Evaluation of Perception and Expectation

Service gap scores are measured by the difference between the expectation means (\bar{x}) of all cases on one criterion and the perception means (\bar{x}) of all cases on the SERVQUAL questionnaire. Therefore, we obtained 21 results of each of the Expectation means (\bar{x}), Perception means (\bar{x}), and Gap means (\bar{x}). All gap results had a negative value, indicating that the perception of the students on the performance of services at the Faculty were below expectations. The quality service dimensions also had an overall gap mean (\bar{x}) for each of the five dimensions, Tangibles, Reliability, Responsiveness, Assurance, and Empathy (see Table 7).

The overall gap mean (\bar{x}) of each of the dimensions was ranked to reveal which of the dimensions as a whole had the most need for improvement. The ranked dimensions were as follows: (-1.54) for Empathy ranging in first place; Tangibles (-1.52) in second place;

Responsiveness and Reliability had the same overall reliability gap and rank (-1.10), and finally, Assurance in fifth place (-0.85).

Table 7. Expectation, Perception, Gap and Importance Performance Analysis

Quality Service Dimension / Criteria	Symbol/ Notificatio n	Expectatio n Means (\bar{x})	Perceptio n Means (\bar{x})	Gap	Rank	Strategy
<u>TANGIBLES</u> ▲						
- Uses up-to-date equipments and technology (computers, educational tools, laboratories....)	TQ1	4.33	3.11	-1.21	10	C
- Have visual appealing (nice looking) buildings and physical facilities	TQ2	4.11	2.54	-1.57	4	L
- Provides accommodation facilities to develop students' interests (sports, clubs...)	TQ3	4.22	1.90	-2.32	1	L
- Have materials associated with its services, such as syllables, handouts, journals, schedules, calendars..., are current, understandable and accessible.	TQ4	4.20	3.24	-0.96	15	P
<i>Overall Tangibles Gap and Rank:</i>				<i>-1.52</i>	<i>2</i>	
<u>RELIABILITY</u> ●						
- Performs teaching services in a professional way, at high level	LQ5	4.49	3.86	-0.63	19	K
- Maintain error free records	LQ6	4.22	3.61	-0.61	21	P
- Provide services as they have promised and said that they will do	LQ7	4.42	2.95	-1.47	6	C
- Provide services at time promised	LQ8	4.23	2.87	-1.36	9	L
- Show honest interest in solving a student's problem	LQ9	4.38	2.99	-1.40	7	C
<i>Overall Reliability Gap and Rank:</i>				<i>-1.10</i>	<i>3</i>	
<u>RESPONSIVENESS (responsibility)</u> ■						
- Are expected to tell their students exactly when services will be performed	RQ10	4.16	3.15	-1.02	14	P
- Give prompt quick services to students	RQ11	4.10	2.73	-1.38	8	L
- Are always willing to help students	RQ12	4.37	3.27	-1.11	11	K
- Are easily accessible when students need them	RQ13	4.40	3.52	-0.88	17	K
<i>Overall Responsiveness Gap and Rank:</i>				<i>-1.10</i>	<i>3</i>	
<u>ASSURANCE (security)</u> +						
- Have trustworthy employees	AQ14	4.39	3.64	-0.75	18	K
- Employees are consistently courteous to students and polite	AQ15	4.39	3.44	-0.95	16	K
- Enhance the feeling of safety and confidence in students in their transactions with the university	AQ16	4.42	3.31	-1.10	12	K
- Employees have the knowledge needed to answer students' questions	AQ17	4.27	3.65	-0.62	20	P
<i>Overall Assurance Gap and Rank:</i>				<i>-0.85</i>	<i>5</i>	
<u>EMPATHY</u> *						
- Give each student individual attention	EQ18	3.81	2.73	-1.07	13	L
- Provide suitable hours for lesson classes, exams, lunchtime, external training	EQ19	4.48	2.55	-1.93	2	C
- Have students' best interest at heart	EQ20	4.25	2.67	-1.59	3	L
- Hear and understand students' specific needs	EQ21	4.29	2.73	-1.55	5	C
<i>Overall Empathy Gap and Rank:</i>				<i>-1.54</i>	<i>1</i>	
<i>Overall Gap</i>				<i>-1.22</i>		

Note: Legend for Strategy based on Expectation/Importance Perception/ Performance: C = Concentrate Here; K = Keep Up the Good Work; L = Low Priority; P = Possible Overkill.

4.3 Importance-Performance Analysis

Analysis of the Expectation and Perception means (\bar{x}) were conducted a step further. The Importance-Performance Analysis (IPA) is a tool to plot attributes due to two factors, their importance and performance sometimes referred to as satisfaction. In this research study, IPA was adapted to be used in a similar way in that Expectations correspond with Importance and Perception corresponds with Performance.

The mean (\bar{x}) of the expectations is calculated as in the gap analysis where the result is the mean (\bar{x}) of all cases of the same criteria. This is similarly done for the perception mean (\bar{y}). We then have 21 criteria for each of the Expectations means (\bar{x}) and Perceptions means (\bar{y}) to be mapped on the IPA analysis chart. The formula is as follows:

$$\bar{x} = \frac{\sum xi}{n}$$

$$\bar{y} = \frac{\sum yi}{n}$$

\bar{x} : average value of customer expectations

\bar{y} : average value of customer perceptions

n : number of sample

The measured attributes or criteria are plotted on the chart of analysis. The X-axis represents the Perception results while Y-axis represents the Expectation result. The chart is divided by the median (\tilde{x}) axis parallel to X- and Y- axis producing four quadrants (see Figure 3). The median value (\tilde{x}) is the median of all of the expectations means (\bar{x}) parallel to the X-axis and the median (\tilde{y}) parallel to the Y axis is that of the median of all of the perception means (\bar{y}). The chart is divided by a median (\tilde{x}) axis and not a mean (\bar{x}) because a true interval scale may not exist and that a median (\tilde{x}) is theoretically more representable for the central tendency on the chart (Silva & Fernandes, 2011a, p. 312).

The results obtained are interpreted and analyzed according to IPA. Expectations of a service related to the level of importance in the perspective of a customer, in our case the student. Perception of service relates to the level of performance interpreted by the customer. IPA helps decision makers to reveal the needed improvements for the service provided.

According to the analysis (see Figure 3), 5 of the attributes are located in Quadrant I that need prioritized attention; 6 attributes in Quadrant B that are doing perfect and need to be standardized; 6 in Quadrant C that might need improvement but not considered as important; and 4 attributes in Quadrant D the “possible overkill” attributes that should be given extra effort and resources. The total 21 attributes were plotted according to their importance/ expectation and performance/ perception values.

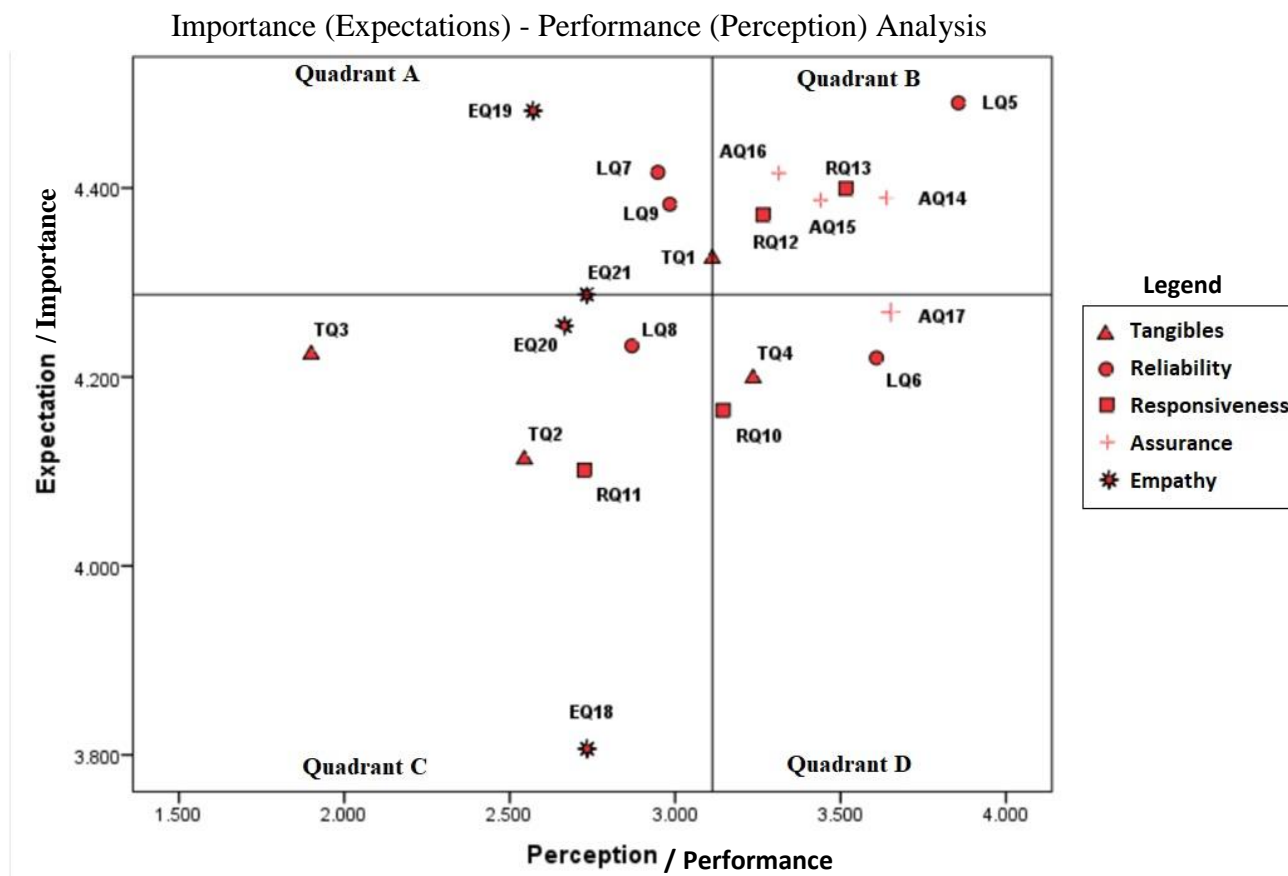


Figure 3. Expectation (Importance)- Perception (Performance) Analysis Chart.

5 Discussion

5.1 General Description of the Results

It is shown that the student's expectations of the service quality of quality dimensions considering Tangibles, Reliability, Responsiveness, Assurance, and Empathy exceeded students' perceived service. The gap analysis results of all the attributes had a negative value. The results showed that the students who responded to the survey did not receive the service quality at FPH IV as they would have expected from a higher education institution of better quality. The quality service dimensions when ranked according to their magnitude based on the negative results showed that the attribute Empathy seemed to be in rank number 1 with a score of -1.54 and Tangibility in second with a close score of -1.52. In general, the gap score ranges from -1.54 to -0.85. The attribute Empathy as a quality service dimension showed that it needed the most attention for improvement.

Importance-Performance Analysis unfolds the specific important attributes that needs improvement. Five out of 21 (around 24 %) of the attributes lay in the upper left quadrant that

needs attention for improvement from management. Two of these criteria belong to the Empathy dimension, two to the Reliability dimension, and one for the Tangible dimension.

5.2 Discussing the Results & Accepting the Research Questions

In the process of analyzing the obtained results, SERVQUAL measures the direction of gap between customer's expectation and perception of service quality. The ultimate measure is when the perception exceeds the expectation and has a positive gap value. In our study, the gap value is negative in all attributes of the SERVQUAL indicating that the students who responded in the survey did not perceive service quality from FPH IV as they would have expected. The gap measures the needed improvement that management needs to consider.

In the gap analysis of the results, the quality service dimension Empathy ranked first with the most significant gap difference. As a public university, this dimension is expected. According to the findings of Karl and Sutton (1998), public service employee have less empathy (i.e., sympathy) than employees working at private sectors. Private employees tend to be under pressure to gain satisfaction from their students to preserve their competence in sustaining tuition-paying students. The authors further elaborate that public sector employees do not have such pressure and do not pursue students' wellbeing to such an extent as in the private sector. The Empathy dimension consists of the attributes that the HEI provides each student with individual attention, provide classes that are at more appropriate hours, exams, lunchtime, external training, that have students' best interests, and understand students' specific needs (measured in Table 7). These attributes need improvement to match students' expectations of these services. As is shown in Table 6, almost 90% of the students are females. They tend to be more interested in emotional and empathetic attitude from employees and people around them. Arguing that this is true, then it is no surprise that the dimension of Empathy ranked first. Second in ranking is the Tangibles dimension. Tangibles dimension included the physical layout of the buildings, equipment, facilities and communication tools. One of the attributes, which stands out as a high gap difference is the item concerning the availability of facilities for sports and entertainment. Currently, in Lebanon, the public university does not have the marketing competence and physical appearances is the least of its concern. However, in the absence of student facilities, such as cafeterias, sports halls, and other supplementary facilities this is a concern that the management needs to examine and consider in future decision-making.

The other remaining dimensions that ranked the last are to less of an extent in need of improvement. Reliability and Responsiveness both ranked in third place. While Assurance ranked last, these results indicate that the student participants did view the service they experienced as a sense of belonging to the university and felt assurance and security. The students participating in the study to some extent trust employee's judgment and responsibility to execute their work.

In the gap analysis, service is considered with respect to each of the five dimensions of service quality. In this regard, the magnitude level of Expectation and Perception is not considered in the analysis, but only the width difference between them. However, in the IPA analysis, the magnitude of expectation of an attribute is represented on the chart as well as its perceived level. IPA gives an individualized presentation of each attribute taking into consideration its expected and perceived level, not the difference in-between. As explained above, the mapping of the 21 attributes on the chart, determines the improvement strategy that is needed giving managers in the service sector predetermined areas that need improvement.

The results of the IPA analysis showed five attributes that need attention from management. They are located inside Quadrant A and are considered of high expectation/importance and low perception/performance. Two of these attributes are that of Empathy EQ19 and EQ21. They are regarding hearing and understanding students' specific needs and providing services as promised. Students are in urgent need from the service provider to take into consideration their specific needs. The employees need to not only do their jobs as they see suitable and as required by management but need to be courteous and helpful. Service is not provided according to students' specific needs. They also need to provide services, which they have promised and, which are expected from them. Management needs to set standard procedures of how to deal with students. Employees need to obtain training of how to provide services to students considering their wellbeing.

The other two attributes in Quadrant A are from the Reliability dimensions LQ7 and LQ9. They are "show honest interest in solving a student's problem" and "provide suitable timing for their service." The faculty is overwhelmed in organizing lessons for students in terms of academic lectures and practical training at hospitals. Many things need to be considered in scheduling the most appropriate time that suits everyone, from the teachers, trainers, the most suitable hospital locations, the diverse students' hometowns (Table 6), and the kind of training they need to have. The results of this study showed that this problem has the highest need to be resolved. Suitable timing and scheduling considerations would enhance this quality dimension service.

The fifth attribute in Quadrant A is a Tangible one. It is the "up-to-date equipment and technology." This public university has limited resources, and better management in providing such services is needed. FPH IV consists of several laboratories and workshops for in-faculty training. The needed recourses are much higher than any other academic faculties. The efficient management and creative resource provision are needed. The Faculty of Public Health, in general, is an expensive faculty to manage. It may also be that high-tech generations are enrolling and as such would expect a high-tech environment. Both the equipment and applications of high technology are needed.

5.3 Authors' Opinions

To place these findings into perspective, the needed improvement on service quality is tremendous. All quality service dimensions need revision and improvement. IPA did set a path for improvement which will result in reciprocal results. In applying the perspective of Vilfredo Pareto, an Italian economist (Pareto & Schvier, 1927), 80% of results come from 20% of causes. It is called Pareto's Principle or the 20/80 rule. In the quality management world, it indicates focusing on 20% of causes will result in 80% of improvements (Koch, 2011).

IPA identified 24% of all 21 attributes that are important and have a high expectation in the opinion of student participants. Giving the required effort for improving the "C" attributes, this will effectively result in 80% improvements that will affect other attributes as well.

Another strong conviction is the implementation of such a quality management system will render these efforts systematically. As stated, this study as stated will trigger the improvements needed in the implementation process that the university is taking albeit in incremental steps. Improvements and homogenizing the findings of this study in standardized operating procedures are the fundamentals of total quality management in the functional aspect (cf. not the technical aspect) of quality service in higher education.

6 Conclusion

The international awareness of the importance of quality assurance in higher education has set the Lebanese University's switching gears in trying to catch up with current trends. Its diversity, wide geographical dispersion in all the Lebanese provinces, made such an aim an important target to attain. The results of this study will contribute towards improvement attributes that can be used as a strategy design for achieving quality assurance.

The gap analysis findings revealed that the Empathy and Tangibles quality service dimensions as the most ranked dimensions that have the widest gap of the difference of expectation and perception of students. All dimensions, in general, require improvements. The IPA chart had 5 attributes that are in the "Concentration" quadrant. The attempts to develop a service improvement strategy can be based on these findings to set an efficient plan. The attributes are (1) hearing and understanding students' specific needs, (2) providing suitable timing of services, (3) using up-to-date equipment and technology, (4) showing honest interest in solving a student's problem, and (5) providing services as promised.

In terms of contribution to the field, in using the SERVQUAL tool for measuring service quality in a new environment, it further postulates whether the tool is useful in measuring service quality in other sectors. Providing strategic improvement suggestions also assists other higher education institutions to do something similar in improving quality service.

Quality service from the perspective of students will sustain the competency and assurance of public universities with respect to private universities. Public universities wellbeing is the supportive pillar for the education of all students with different social status.

Managers of service quality at FSH IV have begun the initiative that assists in the quality improvement strategy needed. The Lebanese University can set forth similar studies to generalize the tool to other faculties to set an efficient quality strategy for improvements. FSH IV can start the improvements needed and set forth the standardization of the operating procedures of quality procedures at the faculty.

Service quality is dynamic. It changes with different generations with different backgrounds. Students' expectations of service quality depend upon their previous knowledge about the quality and expectations of a higher education institution. Their prior orientation of how an excellent higher education institution needs to be, could be diverse and transformed depending upon the source of their view, either due to information received from a friend, sibling, or any other avenue. Continuous measurement and use of the scale will provide a better and more accurate view of the situation.

In the quest of seeking quality assurance and accreditations, quality seeking tools would be a never-ending quest. SERVQUAL could be done in further measuring effective changes that are implemented, as well as longitudinally. The tool could also be used as a comparative assessment with other faculties or other branches.

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Povzetek:

Kakovost storitve na Libanonski univerzi: Fakulteta za javno zdravje

Raziskovalno vprašanje (RV): S spremembami v toku globalnega znanja se visokošolski zavodi soočajo z vprašanjem svoje kakovosti z vidika svojih primarnih strank, študentov. Raziskovalno vprašanje sprašuje, ali obstajajo razlike v kakovosti storitev v zvezi s pričakovanji in dojemanjem in katere storitvene dimenzije je treba izboljšati. Kakovost storitev je ena od glavnih perspektiv, ki jih je treba vključiti v skupne strategije kakovosti na visokošolskih zavodih za dokazovanje odličnosti in nadaljnje akreditacije.

Namen: Namen te raziskave je oceniti kakovost storitev na ravni fakultete, spremljati spreminjajoče se potrebe študentov in integrirati potrebe in pričakovanja v strategiji za izboljšanje kakovosti na visokošolski ravni. Ta študija bo poskušala določiti pot in opredeliti dejavnike za izboljšave in njihovo prednostno razvrstitev.

Metoda: Instrument SERVQUAL je bil uporabljen za oceno kakovosti storitev po GAPS modelu ter orodje za analizo Izboljšanj-Učinkovitosti pri določanju prednostnih atributov kot strateški cilji za izboljšave. Podatki so bili zbrani na Libanonski univerzi (LU) na Fakulteti za javno zdravstvo enota IV.

Rezultati: Kakovostne dimenzije storitev, ki najbolj pripomorejo k izboljšanju, so dimenzije Empatije in Oprijemljivosti. Specifični atributi, ki so pokazali potrebe po izboljšanju učinkovitosti visokega pomena so bili: poslušanje in razumevanje specifičnih potreb študentov, zagotavljanje ustreznega časovnega razporeda storitev, uporaba sodobne opreme in tehnologije, izkazovanje poštenega zanimanja za reševanje študentskih problemov in zagotavljanje obljubljenih storitev.

Organizacija: Libanonska univerza bo imela strategije izboljšav, ki so potrebni v načrtu izboljšanja za nadaljnje akreditacije. Na ravni fakultete se na podlagi rezultatov lahko določi standard delovanja in ponovno ovrednoti oceno učinkovitih sprememb.

Družba: Kakovostna storitev z vidika študentov bo ohranila kompetentnost in zagotovitev javnih visokošolskih zavodov v primerjavi z zasebnimi. Kakovost javnih univerz je podporni steber za izobraževanje vseh študentov iz različnih družbenih slojev.

Originalnost: Ta študija je prva ocenila kakovost storitev na Libanonski univerzi. Pričakuje se, da bo sprožila nadaljnje podobne in neprekinjene serije ocen za vse fakultete, ki bodo zbrale natančen pregled potrebnih izboljšav in jih določile kot strategije v načrtih Libanonske univerze.

Omejitve/nadaljnje raziskovanje: Kakovost storitev je dinamični proces. Spreminja se s spreminjajočimi se generacijami z različnimi izkušnjami. Neprekinjeno merjenje in uporaba merilnega instrumenta zagotavljata boljši in natančnejši pregled stanja.

Ključne besede: Kakovost storitev, visokošolsko izobraževanje, SERVQUAL, analiza razhoda, Analiza pomembnosti in uspešnosti, Libanonska univerza, Fakulteta za javno zdravje enota IV.

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